A FIELD SURVEY OF CHROMOSOME NUMBERS IN THE SPECIES OF *TRADESCANTIA* CLOSELY ALLIED TO *TRADESCANTIA VIRGINIANA*

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PART I. PRESENTATION OF DATA

Some twenty years ago I began to collect quantitative data on variation in chromosome number in *Tradescantia*. Having learned at the John Innes Horticultural Institution the comparative ease with which accurate chromosome counts of the American Tradescantias could be made with modern methods, and living within easy-collecting distance of five different species, I set about to supplement the extensive chromosome-number surveys of various other cytologists by an intensive survey of a few species. Darlington (1929) had shown that chromosome number *could* vary in this group of species; I thought it would be productive to learn to what extent it actually did vary. This eventually led to taxonomic (Anderson and Woodson, 1935) and cytological monographs (Anderson and Sax, 1936) with Dr. R. E. Woodson, Jr. and with Dr. Karl Sax in which I undertook the major responsibility for building up a comprehensive collection of living plants while my colleagues performed the bulk of the technical investigations. When still actively engaged upon the survey I stumbled upon the phenomenon of introgression. Before the survey was completed I had moved from the Missouri Botanical Garden to Harvard University and then moved back again. In spite of these diversions the survey has proceeded. Chromosome numbers have been carefully determined for nearly 1000 plants of eighteen species of *Tradescantia* in the *virginiana* group, all of them collected in the field. Nearly 500 of these counts have been accurately recorded and filed and are presented herewith. They give good, quantitative data on the stability of chromosome number under field conditions. Preliminary accounts were included in the cytological and taxonomic monographs, and a summary of some of the main points was included in a survey article in the *Botanical Review* (Anderson, 1937). Detailed reports have been made on various special phases of the investigation (Anderson, 1936; Anderson and Diehl, 1932; Anderson and Hubricht, 1938; Riley, 1936; Whitaker, 1939). This constitutes a final report on the original project. In presenting the cytological data for each species, I have therefore included additions and corrections to the cytological and taxonomic monographs, as well as notes and comments on each species as an evolutionary unit.

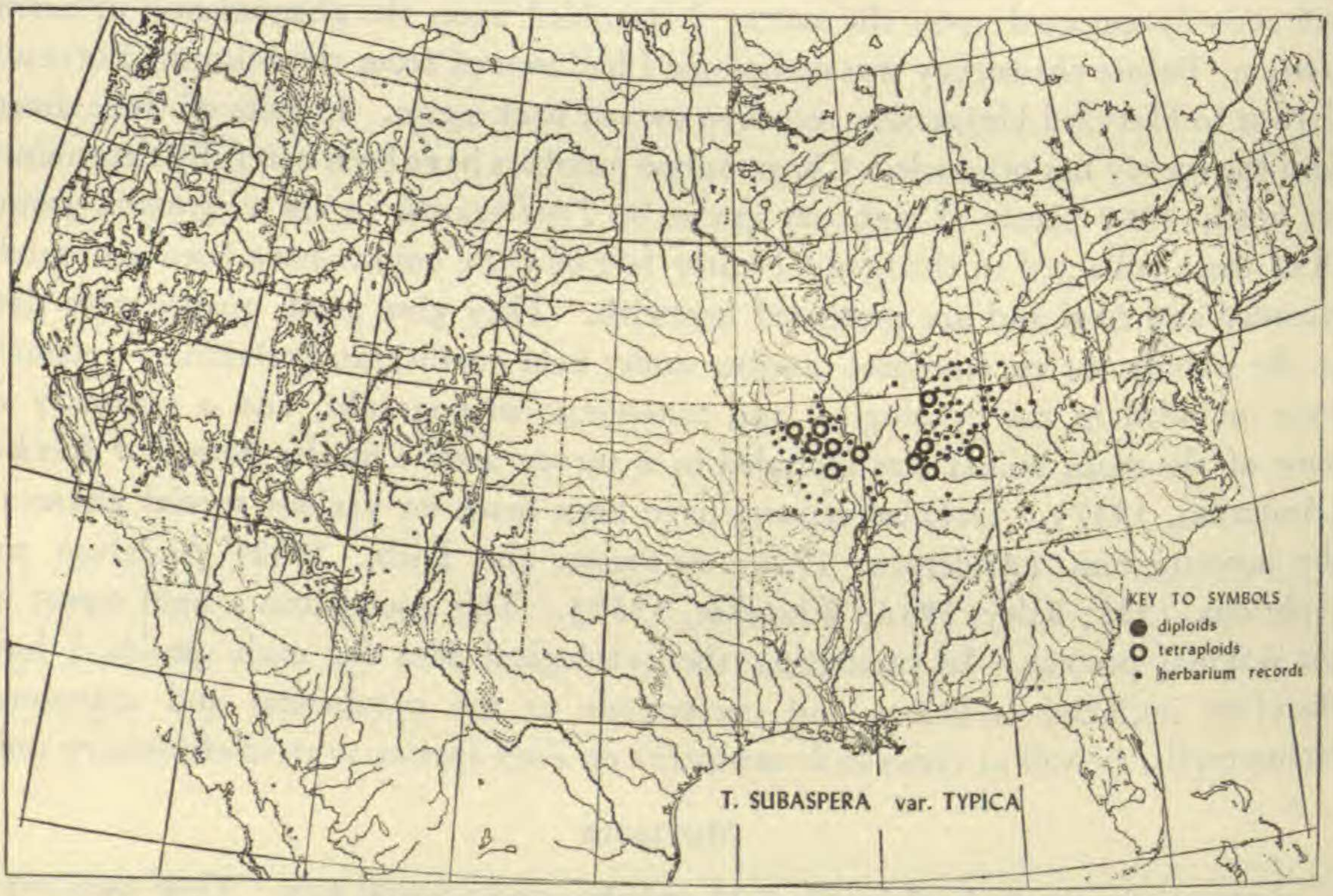
METHODS

Counts were made both in the field and the experimental plot. They were made almost exclusively from fresh aceto-carmine smears. Wherever possible metaphases of both meiosis and mitosis of the microspores were examined. Any seeming irregularities of either of these divisions were exhaustively looked into. If the microspores showed any micronuclei or if the percentages of sterile pollen were higher than normal, meioses were obtained for study even though this meant transplanting to an experimental plot and re-investigating the plant in another season.

Counts were made in the field or on transplants of my own collecting and on plants sent in by friends and collaborators. The technique of labelling and indexing these collections has been described in detail in Anderson and Sax (1936).

PRESENTATION OF DATA

The species are presented here in the same order as the taxonomic monograph by Anderson and Woodson: *T. subaspera, T. edwardsiana, T. ozarkana, T. ernestiana, T. virginiana, T. hirsutiflora, T. tharpii, T. gigantea, T. ohiensis, (T. reflexa, T. canaliculata), T. paludosa, T. bracteata, T. hirsuticaulis, T. longipes, T. reverchoni, T. humilis, T. subacaulis, T. roseolens, T. occidentalis.* These are all in the *virginiana* group and represent all the known species of that group native to the United States. They all have erect or ascending stems, not ordinarily rooting at the nodes (see comments under *T. paludosa*). The sepals are more or less concave but are without a definite keel. The bracts below the flowers are conspicuous and similar to the leaves. The seeds are somewhat oblong with a linear funicular scar as long as the seed. The chromosomes are large with median or submedian attachment constrictions. The chromosome number (2n) is normally either 12 or 24.



Map 1

Tradescantia subaspera var. *typica.*—

This has been sampled at twelve localities from northern Florida to central Missouri. At Wolf Creek, in eastern Tennessee, one diploid (2n = 12) was collected. The 16 other plants, from the eleven other localities, were all tetraploid

(2n = 24). No plants were found with extra chromosomes, with fragment chromosomes, or other cytological abnormalities.

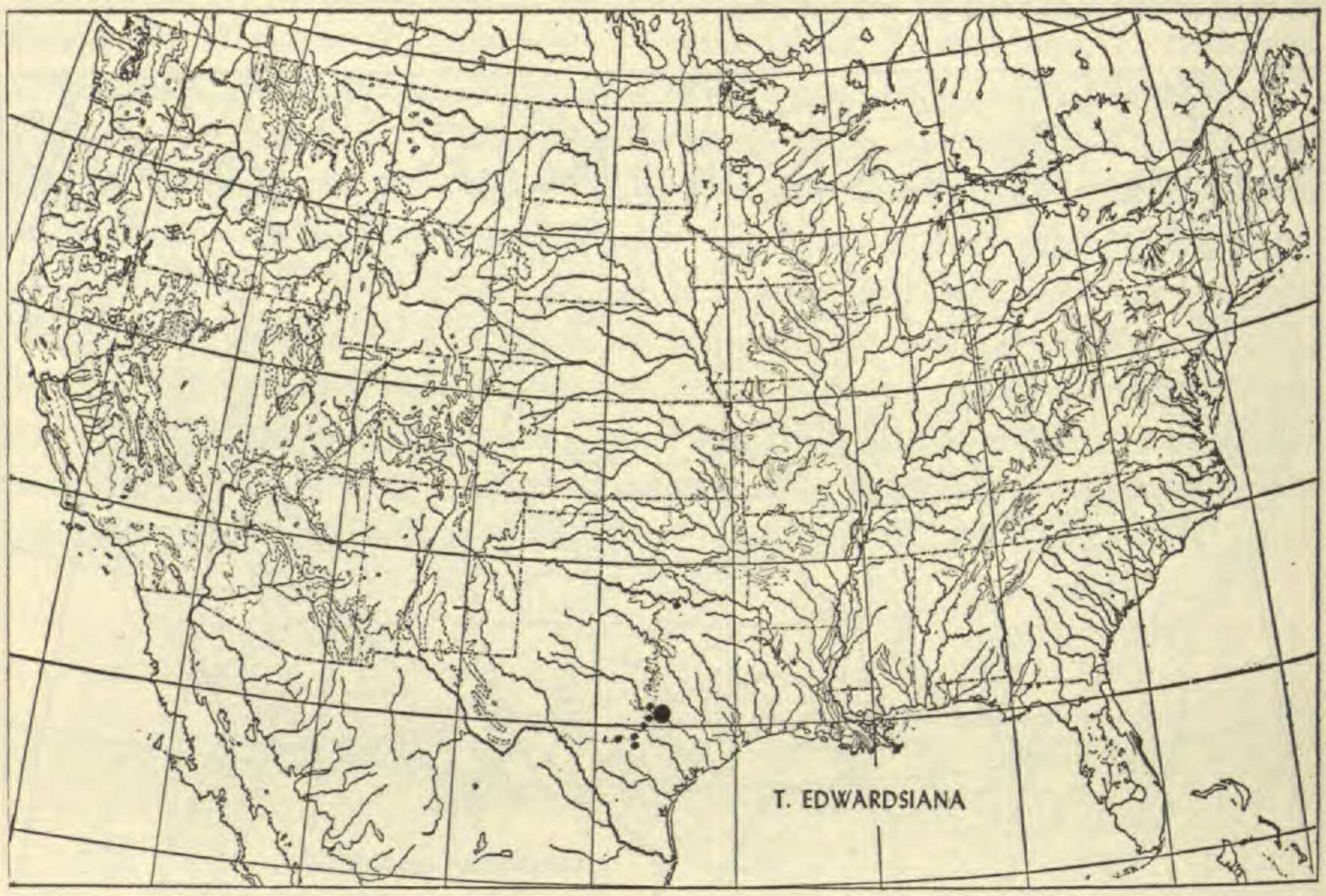
T. subaspera var. *typica* is a handsome, summer-blooming plant of deep shade and rich soils which in its general appearance is quite unlike the other species of this group. The record in northern Illinois in Anderson and Woodson was in error. The common so-called *T. virginiana* of gardens is descended almost as much from this species as from true *T. virginiana*.

Map 2

Tradescantia subaspera var. *montana*.—

Morphologically, this variable taxon is similar to artificial hybrids between *T. subaspera* var. *typica* and *T. ohiensis*. Hybridization with the latter species is still actively going on, particularly in habitats grossly disturbed by man, and two of these are reported below. *T. subaspera* var. *montana* is so variable and has so much higher a percentage of sterile pollen and cytological abnormalities than any of the other taxa reported on here, that it seems likely it is the result of introgression of *T. ohiensis* into *T. subaspera* var. *typica*. Though much of this introgression may have occurred recently it was the opinion of Dr. Hiram Showalter, who was studying the phenomenon at the time of his death, that part of it was pre-Columbian. A careful study of *T. subaspera* var. *montana* in the field and in the breeding plot would settle this question and be of general interest. I have Dr. Showalter's notes and herbarium specimens, as well as a few of my own, and shall be glad to turn them over to any qualified person with the facilities for continuing with the problem.

Collections were made at eight localities, from Alabama to Tennessee and North Carolina. Chromosome counts were made on 25 plants in all. Twenty-four of these were regular tetraploids with 24 chromosomes. The other plant had two extra chromosomes; it showed a high percentage of bivalents at meiosis; and the microspores contained occasional micro-nuclei.



Map 3

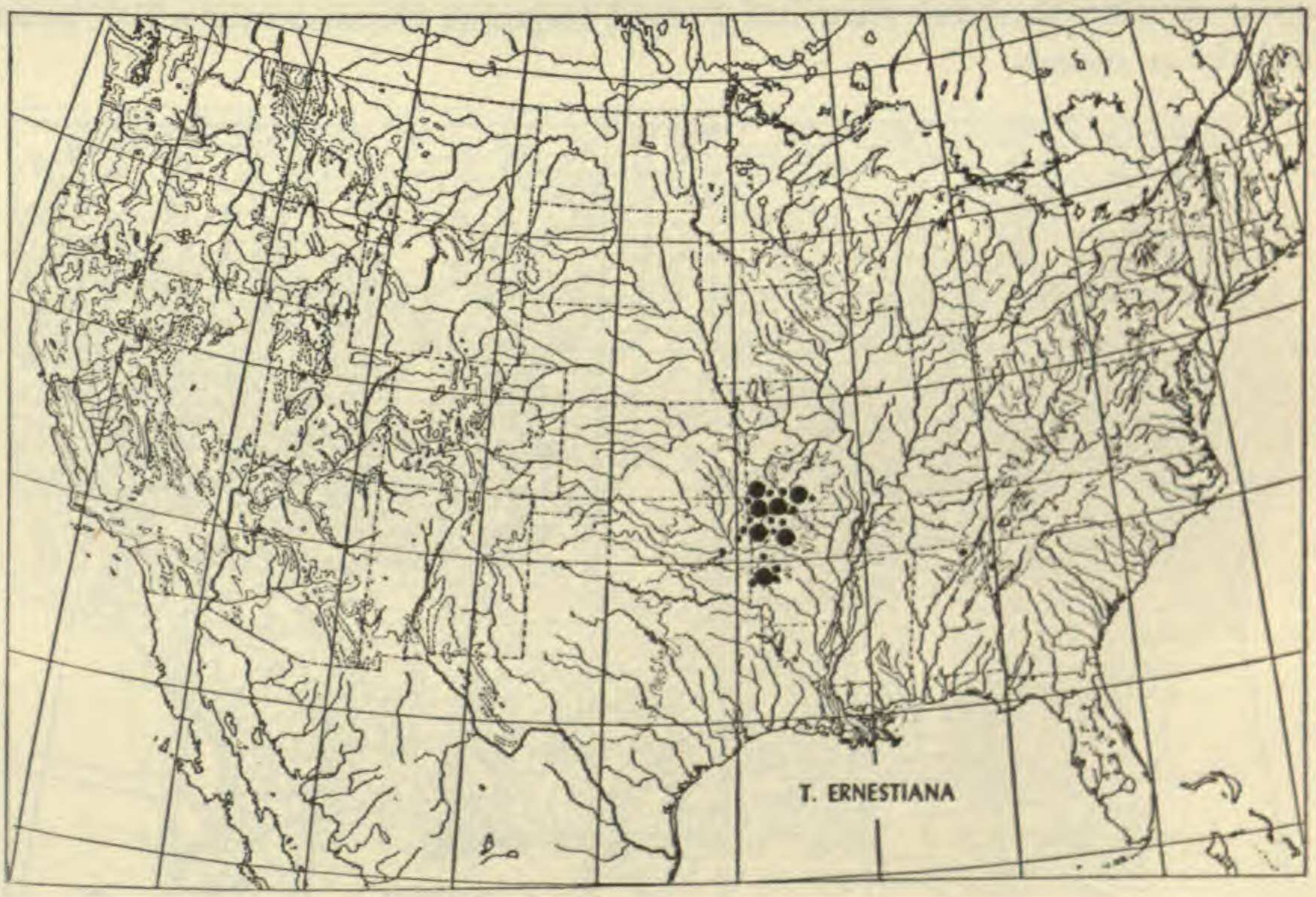
Tradescantia edwardsiana.—

This is a very localized species growing in shady spots along the edge of the Edwards Plateau. Additional collecting has extended the range to northern Texas. Collections were made at two points; 17 plants were examined. All were regular diploids with 12 chromosomes.

Tradescantia ozarkana.—

This peculiar species has a disjunct distribution on isolated Cretaceous mesas and plateaus in Arkansas and southwestern Missouri. Additional collecting has slightly extended the range. At the most southwestern part of its range (Rich Mountain) this species is diploid. In the Boston Mountains and in the Ozarks it is a tetraploid. Counts were made on one plant each from five localities. All were regular tetraploids or regular diploids with no extra chromosomes or other cytological abnormalities. In southwestern Missouri, at the type locality for the species, it is undergoing extensive introgression from *T. ohiensis*.

Map 4



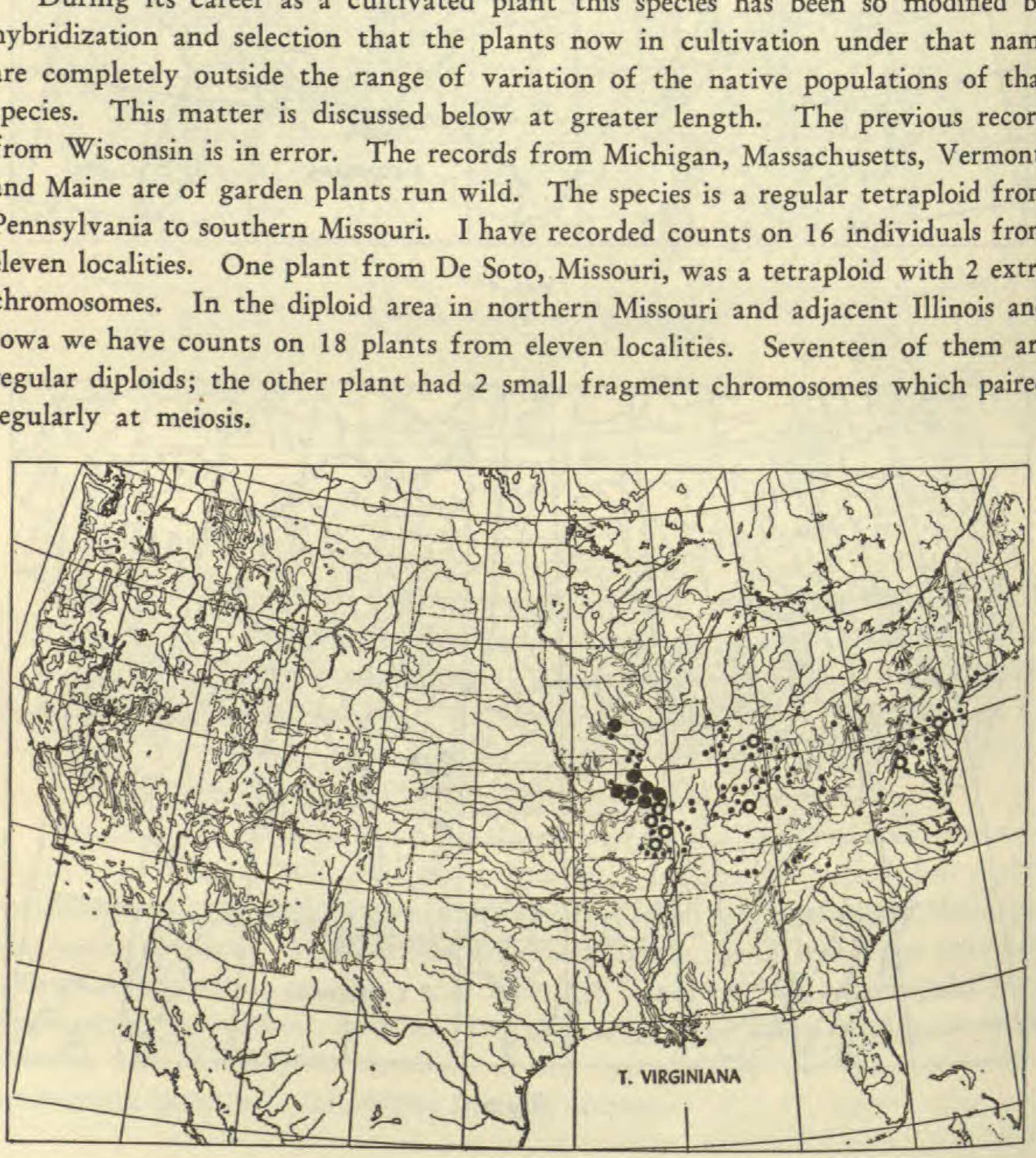
Map 5

Tradescantia ernestiana.—

This species is known only as a diploid. Nine counts were obtained at five localities from Rich Mountain to Missouri. All were regular diploids with 12 chromosomes (2n). *T. ernestiana* has a distribution similar to *T. ozarkana* though these two species are very unlike. Additional collecting and a better understanding of the species have extended the range to northern Alabama and northern Georgia, a range which is typical of many species found in the Ouachita Mountains. Specimen plants from northern Alabama sent us during the early years of our investigation by Dr. B. P. Kauffmann, and which we were unable to identify at that time, undoubtedly belonged to this species.

Tradescantia virginiana.—

During its career as a cultivated plant this species has been so modified by hybridization and selection that the plants now in cultivation under that name are completely outside the range of variation of the native populations of that species. This matter is discussed below at greater length. The previous record from Wisconsin is in error. The records from Michigan, Massachusetts, Vermont, and Maine are of garden plants run wild. The species is a regular tetraploid from Pennsylvania to southern Missouri. I have recorded counts on 16 individuals from eleven localities. One plant from De Soto, Missouri, was a tetraploid with 2 extra chromosomes. In the diploid area in northern Missouri and adjacent Illinois and Iowa we have counts on 18 plants from eleven localities. Seventeen of them are regular diploids; the other plant had 2 small fragment chromosomes which paired regularly at meiosis.



Map 6

The diploid zone of this now prevailingly tetraploid species is of some interest floristically. It includes the small area north of the Missouri River and west of the Mississippi which apparently was not over-run by either the Illinoian or Kansan glaciation. It is a region so rich in species which are rare or unknown in the glaciated areas immediately around it that Steyermark and others (Steyermark, 1934; Steyermark and Palmer, 1935) have supposed its floristic composition reflects its physiographic history. The fact that all the *T. virginiana's* which have been examined in this area are diploids, while the species is prevailingly tetraploid, would lend some support to this theory. The diploids, almost certainly the original form of the species, might have persisted here when eradicated elsewhere or their habitat might have retained its essential features here in the absence of glaciation though so altered in the glaciated areas that the diploids never spread back in.

Tradescantia hirsutiflora.—

This is the least understood of any of the species in the *virginiana* group. Its members were originally native to light soils from Texas to Florida. Most of the habitats in which it originally flourished have been put under cultivation. Collections by Demaree have extended the distribution into central Arkansas. Introgression with several other species has taken place extensively, notably with *occidentalis*, *ohiensis*, and *paludosa*. Some of the introgressants are at a selective advantage in the new habitats, being under man's influence, and *T. hirsutiflora* is on its way to becoming a common weed in parts of the South. It, or something very closely akin to it, became incorporated in *T. bracteata*, forming a binary

Map 7

variation pattern which was the subject of a special study (Anderson and Hubricht, 1938). The weedy nature of *T. hirsutiflora* is reflected in the high percentage of cytological abnormalities which have been found in the relatively few populations which were examined. There is a diploid area in Texas and Louisiana, while as a tetraploid the species has spread north to central Arkansas and east to Georgia. The diploid has been studied at twelve localities. Twenty plants had no irregularities. Two had each an extra pair of chromosomes and one showed a large fragment chromosome at meiosis. Tetraploids were studied at four localities, one example from the same Louisiana parish as a known diploid. Chromosome counts were made on five plants. All were regular.

Map 8

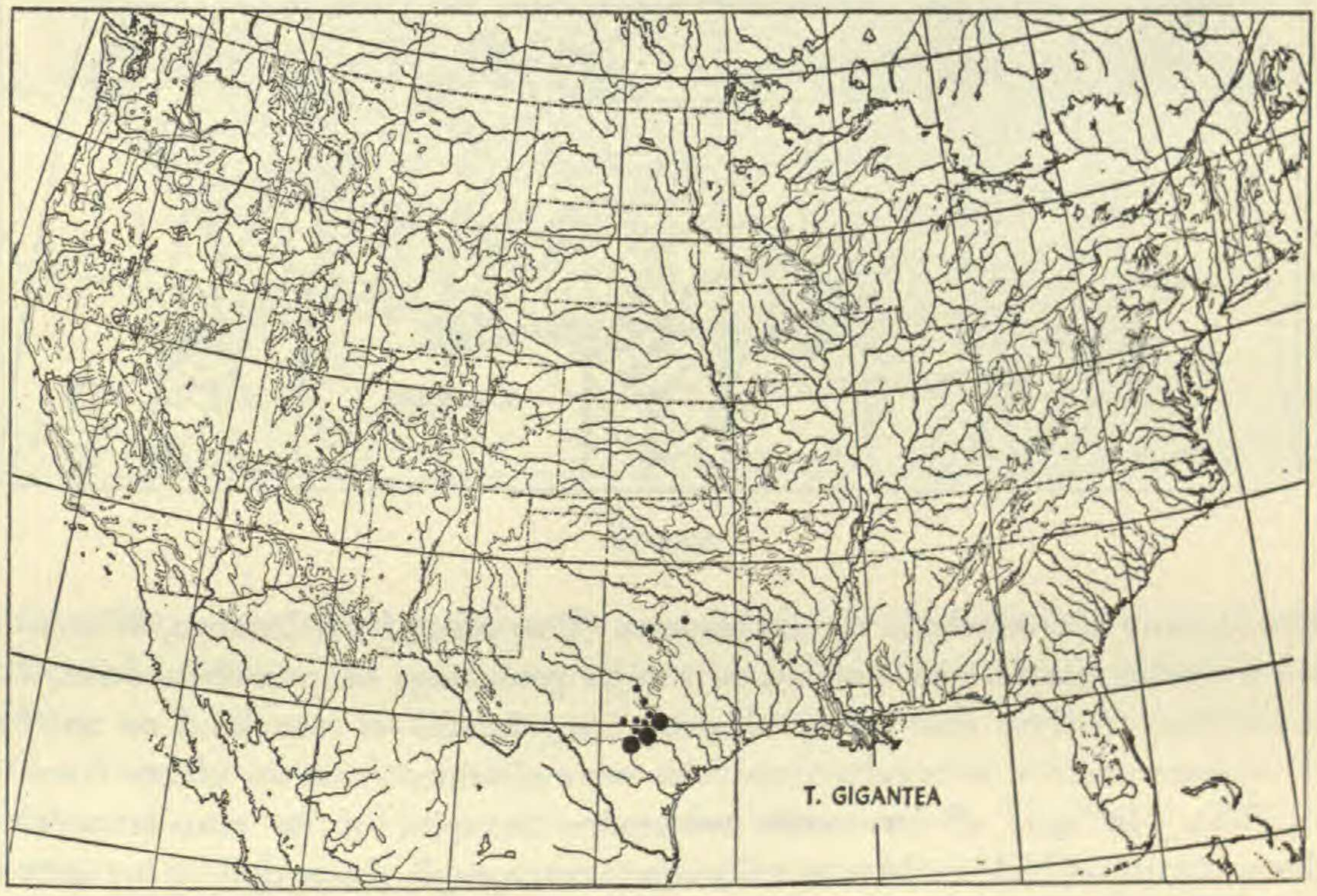
Tradescantia tharpii.—

This charming and distinctive species is native to the front of the Great Plains from Texas to Kansas. The record from eastern Oklahoma (Anderson and Woodson, 1935) is in error. In addition to an early count from a plant collected somewhere in Texas, we have counts from one collection each in Oklahoma, southwestern Missouri, and Kansas. All seven plants were regular tetraploids.

Tradescantia gigantea.—

This distinctive species, characterized among other things by a velvety pubescence on the bracts, was originally native to rocky places along the front of the Edwards Plateau. It has hybridized somewhat with the other species in that area and is now spreading out actively along railroad right-of-ways, roadsides, and

vacant lots. Additional collection has shown the range to extend into northern Texas. It shows marked resemblances to Mexican species which do not reach the United States. In common with *T. ohiensis* it exhibits a character of considerable phylogenetic significance in the Commelinaceae; it has multiple cymes within its large floral bracts, instead of simple cymes like most of the American species. There are counts on 70 plants from twelve localities. All were regular diploids except one plant which had an extra pair of chromosomes.



Map 9

Tradescantia ohiensis.—

This common, widespread species of the Middle West and the South has unfortunately gone by more than one name. It was referred to as *T. reflexa* in the 7th edition of Gray's *Manual* and as *T. canaliculata* in the monograph by Anderson and Woodson. *T. ohiensis* is an older name and the correct one (Fernald, 1944) according to international rules. It has a diploid area in Texas and Louisiana and another in Michigan and Indiana which has been the subject of monographic attention by Dean (1954). No irregularities were found among the diploids. Among the tetraploids three plants with extra pairs of chromosomes were found, one in Mississippi, one in Florida, and one in Arkansas. The Mississippi plant showed a marked excess of non-disjunctional divisions at meiosis; five other plants from the same locality were normal. The exceptional plant from Clarksville, Arkansas, exhibited many micronuclei which did not disjoin properly. One plant from Hamburg, Missouri, in a colony suffering extensive introgression from *T. subaspera*,

Map 10

showed many micronuclei in the microspores. One plant from Baraboo, Wisconsin, had irregular meiosis with univalents, a high percentage of non-disjunction, etc. In addition to these four plants showing irregularities of one kind or another, chromosome counts on regular tetraploids were obtained from 96 plants from 56 localities. In spite of its weedy tendencies, in spite of its auto-tetraploidy, this species for which we have a really significant sample shows only 4 per cent of obvious irregularities. All the records from the Virginia border northeastward are undoubtedly from introduced plants. The two collections from northern Michigan were apparently waifs. The species has never been re-collected in that area.

Tradescantia paludosa.—

This curious little species is native to rich Live Oak soils of the Mississippi Delta. Additional collection has extended the range of this species into southern Arkansas and eastern Texas on the same black-soil, low river-terraces from which it had previously been reported. It bears a curious morphological relationship to all the other species of the *virginiana* group. It differs very slightly from *T. ohiensis.* However, the slight differences between it and that species are all *in the direction* of the creeping tropical Tradescantias. In other words, the differences, slight as they are, would almost remove it from this group of species. It has smaller flowers, is without stomata on the upper side of its leaves, and Bramsch (1936) has shown that, unlike the other species of the *virginiana* group, it resembles the tropical Tradescantias in the large cells on the upper sides of the leaves. It also comes closer to rooting at the nodes than any other species of the *virginiana* group, close enough so that it can be rooted readily from cuttings.

Map 11

It seems to me quite probable that *T. paludosa* originated from a rare cross between *T. ohiensis* and some tropical creeping *Tradescantia*, this hybrid backcrossing to *T. ohiensis* and producing introgressants which eventually stabilized with a very few segments (perhaps one or two chromosome arms) in what was otherwise *T. ohiensis*. The combination, however achieved, has been a boon to cytology. It combines the large, easily studied chromosomes of the *virginiana* group with the adaptability to greenhouse conditions of many tropical Tradescantias. It has become one of the standard subjects in radiation research and is one of several unexpected by-products of this investigation of chromosome-number variation.

T. paludosa is known only as a diploid. We have counts on 16 plants from four different Louisiana parishes. All these plants are regular diploids. Earlier collections were made by me from semi-domesticated plants in New Orleans gardens and from a population in the railroad yards which was hybridizing with *T. hirsutiflora* and became the object of a special investigation by Riley (1939). These were likewise diploids, but many plants among them had tiny fragment chromosomes, sometimes in very large numbers. These fragments have been the object of special investigations by Whitaker and others (Whitaker, 1939).

Tradescantia bracteata.—

The peculiar binary variation pattern of this species has been the object of a special investigation (Anderson and Hubricht, 1938). The species is a diploid. Chromosome numbers were determined of 40 plants from 25 localities. Two plants from Lawrence, Kansas, were tetraploids and two from Grinnell, Iowa, were

triploids; all the rest were regular diploids. I have suggested (Anderson and Hubricht, 1938) that under the prairie and plains conditions where this species is native, ploidy, with its tendency to increase length of blooming season, would be at a selective disadvantage. The plants from Grinnell and Lawrence show that polyploid strains can arise in this species. The Michigan collection has been checked and represents a truly disjunct distribution, something which is rather rare in these Tradescantias. The record from Indiana in Anderson and Woodson was a depauperate specimen of *T. virginiana*.

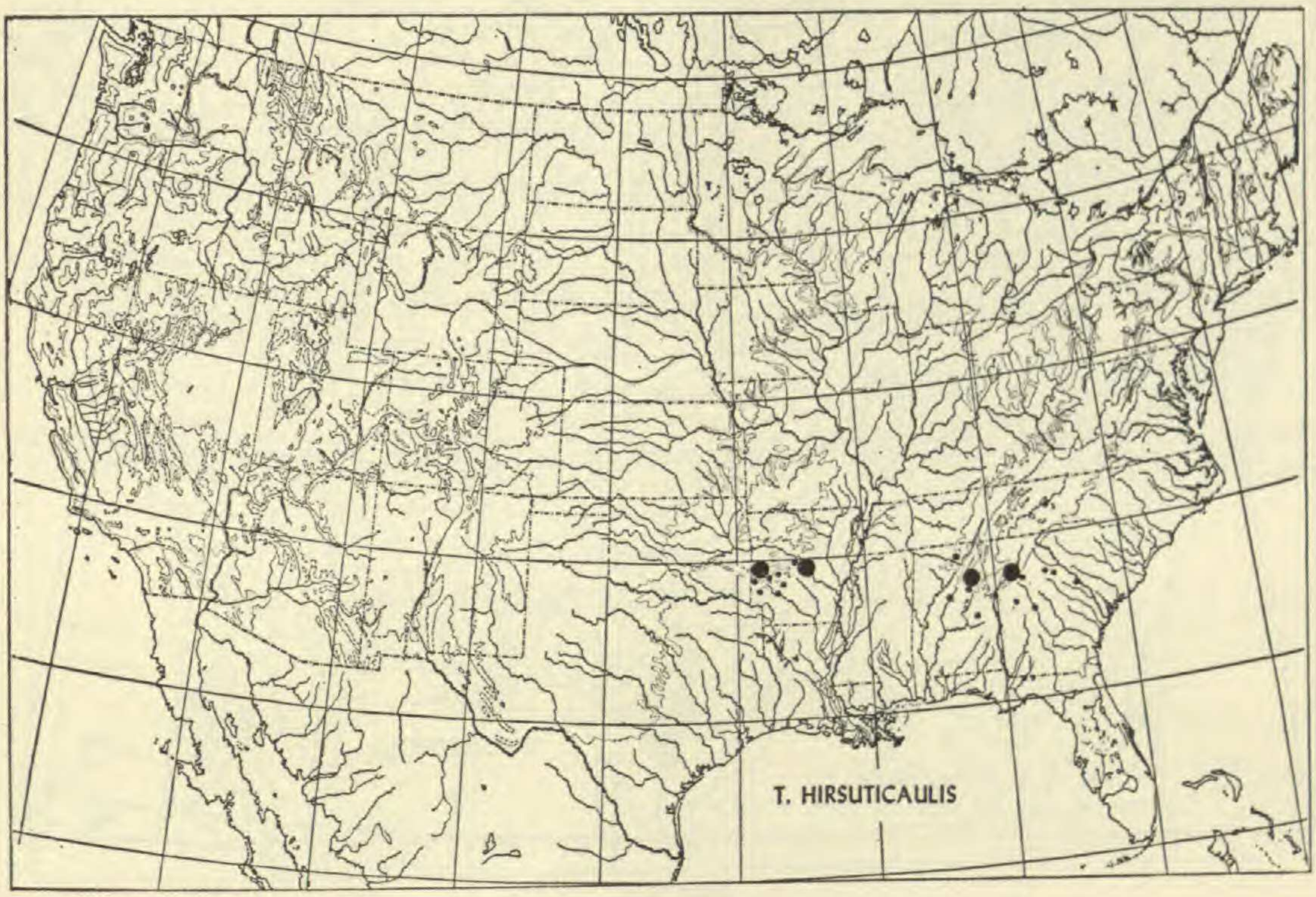
Map 12

Tradescantia hirsuticaulis.—

This species is exclusively diploid. Twenty-one plants were examined from ten localities. At two localities plants were found with an extra pair of chromosomes. There were also chromosome fragments in these two plants. One plant from still another locality had very small fragment chromosomes in addition to the diploid complement. These three abnormal plants were from Stone Mountain, Georgia, eastern Arkansas and western Arkansas.

Tradescantia longipes.—

I have three counts on this species from three different localities in Missouri. All three were regular tetraploids. Further collecting has extended the distribution to St. James County, Missouri, on the same general type of soil.



Map 13

Map 14

Map 15

Tradescantia reverchoni.—

This species is found along the Carizo sand ridge in Texas and on coastal sands. When these sandy soils are brought under cultivation for truck crops, as near Winter Haven, Texas, *T. reverchoni* may hybridize extensively with *T. occidentalis*. We have counts on five plants from two localities in Texas; all were regular diploids. One plant was counted in northwestern Louisiana; it was a regular tetraploid.

Tradescantia humilis.—

This species was native to the rich black soil at the edge of the coastal plain in Texas and was so common and so conspicuous as to have been collected frequently by early naturalists. Virtually all this land is now in cultivation (much of it in cotton) or in cities and military camps. *T. humilis* lingers on around the fringes of its former home. I have found it along railroads, in bee yards, along roadsides, behind sign boards, in real-estate developments, and along the fences around military establishments. Most of the specimens I collected showed signs of slight introgression from other species, as might be expected under such conditions. Sixteen plants were counted in seven localities; all were regular diploids.

Tradescantia subacaulis.—

This species was counted in two localities. Both plants were regular diploids. While I knew the species well in the herbarium I had not seen it in the field until I made these two collections. It comes up in deep sand, and much of the stem is subterranean. The plant is also rather more succulent than the other species in the *virginiana* group. When it is dug up out of the sand and dried out in a plant

Map 16

Map 17

press it changes its aspect more radically than any of our other *Tradescantias.* It was therefore not until my specimens were nearly dry that I realized I had at last found *T. subacaulis.*

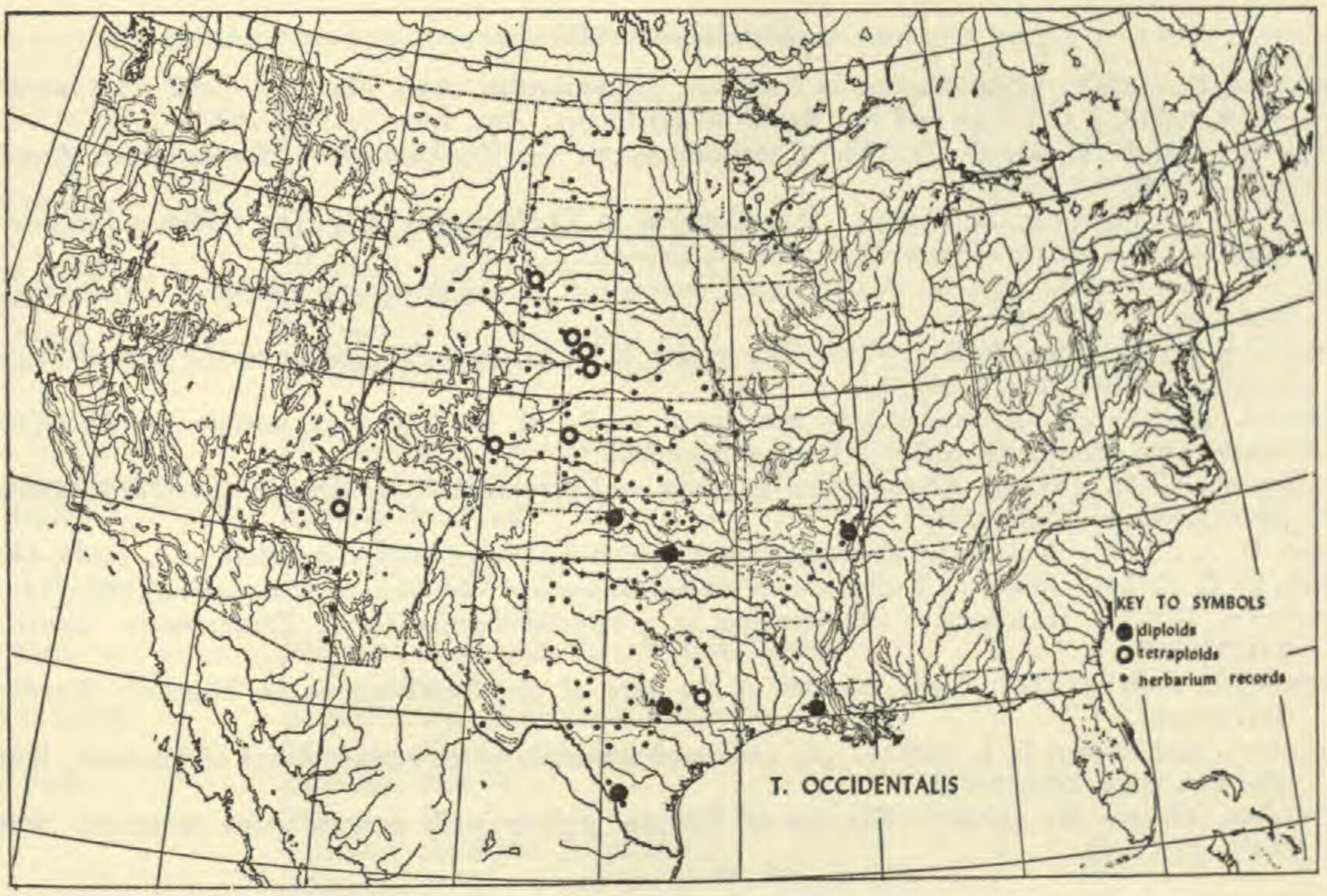
Tradescantia roseolens.—

This species was found in the field only once. Five plants were counted; all were regular tetraploids.

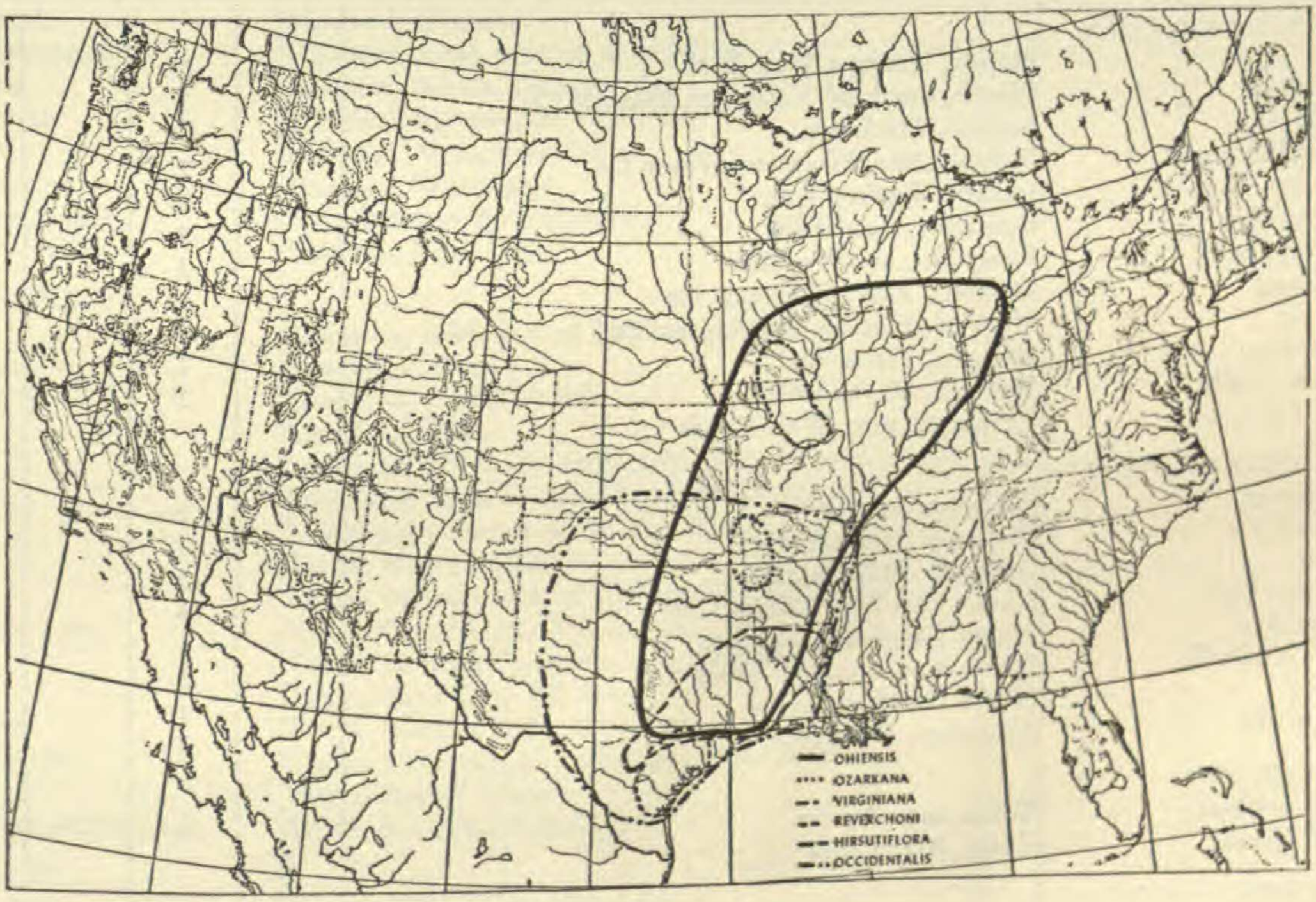
Map 18

Tradescantia occidentalis.—

This species is differentiated both geographically and ecologically. Out of it is coming one of the most aggressive weeds in the Great Plains. Further collecting has extended the record of this species in Louisiana and Arkansas where it is a common plant on sandy terraces which supported natural prairies before they were brought into cultivation. In parts of Texas one can find slender diploid plants of *T. occidentalis* in among the mesquite bushes and coarse tetraploids of *T. occidentalis* along the highway a few feet away. On many a remote mesa in the Great Plains, however, there will be slender little plants, far from any highway, which are tetraploids. Furthermore, the weedy strains are themselves demonstrably differentiated geographically. Part of this, it has been demonstrated elsewhere (Anderson and Hubricht, 1938), is due to extensive introgression from *T. ohiensis* which is actively spreading westward far beyond the range of *T. ohiensis* itself. Forty chromosome counts were made at 22 localities. At seven localities the 11 plants counted were regular diploids. At 15 localities the 29 plants counted were tetraploids. One of these plants was somewhat irregular with many univalents, and with micronuclei in the microspore. The other 28 were regular.



Map 19



Map 20

Diploid areas of species which are elsewhere tetraploid. It will be noted that these areas tend to center upon Texas as do most of the purely diploid species.

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Plant Name Anderson & Sax (1936)	Locality	2n	4n	2n +2	4n +2
T. subaspera var. *typica*					
	Florida, Torreya State Park		2		
Mordock	Illinois, north of Valmeyer, Monroe Co.		1		
Hazleton	Indiana, Hazleton		1		
New Harmony	Indiana, New Harmony, Posey Co.		1		
Turkey Run	Indiana, Turkey Run		3		
Louisville	Kentucky, Louisville		1		
Smith's Mill	Kentucky, Smith's Mill		1		
Ashland	Missouri, Ashland, Boone Co.		1		
Fertile	Missouri, Fertile, Washington Co.		1		
Hermann	Missouri, Hermann		1		
Marthasville	Missouri, Marthasville		3		
Wolf Creek	Tennessee, near Wolf Creek	1			
T. subaspera var. *montana*					
Anniston	Alabama, Anniston		1		
Gravel Pit	Alabama, Jacksonville		3		
Hair	Alabama, Jacksonville		3		
Balsam Gap	North Carolina, Balsam Gap		8		1
Cherokee	North Carolina, Cherokee		1		
Mt. Mitchell	North Carolina, Mt. Mitchell		5		
Sylva	North Carolina, Sylva		1		
Knoxville	Tennessee, Knoxville		2		
T. edwardsiana					
Edwardsiana	Texas, near Austin	15			
Bull Creek	Texas, Bull Creek	2			
T. ozarkana					
	Arkansas, Deer		1		
Boston Mtns.	Arkansas, south of Jasper, Newton Co.		1		
Heinze	Arkansas, Rich Mountain, Polk Co.	1			
Hotel	Arkansas, Rich Mountain, Polk Co.	3			
Roaring River	Missouri, Roaring River State Park, Barry Co.		1		

Plant Name Anderson & Sax (1936)	Locality	2n	4n	2n +2	4n +2
T. ernestiana					
	Arkansas, Rich Mountain, Polk Co.	1			
Eagle Rock	Missouri, Eagle Rock, Barry Co.	1			
Jasper	Missouri, Jasper Co.	1			
Elk River	Missouri, Noel, McDonald Co.	2			
Julian	Missouri, Richville, Douglas Co.	4			
T. virginiana					
New Athens	Illinois, 1 mi. west of New Athens, St. Clair Co.	3			
Tobacco Landing	Indiana, Harrison Co.		1		
Portland	Indiana, Portland		1		
H.S.C.	Iowa, Skunk River, Poweshiek Co.	3			
Skunk River	Iowa, bluffs along N. Skunk River, north of Sharon, Poweshiek Co.	2			
Algovirg	Missouri, Algonquin Sta., Webster Groves, St. Louis Co.		1		
Fowler Creek	Missouri, east of Ashland, Boone Co.	1			
DeSoto	Missouri, DeSoto, Jefferson Co.				1
Dry Fork	Missouri, Dry Fork	1			
	Missouri, 7 mi. south of Fredericktown, Madison Co.		2		
	Missouri, Goldman, Jefferson Co.		2		
	Missouri, ½ mi. east of Greenville, Wayne Co.		3		
Koester	Missouri, Koester, St. Francois Co.		1		
New Florence	Missouri, New Florence, Montgomery Co.	1			
New Melle	Missouri, New Melle, St. Charles Co.	1			
Mineola	Missouri, Mineola	1			
Cherbonnier	Missouri, 5 mi. west of St. Charles	1			
Selma	Missouri, Selma, Jefferson Co.		1		
Mattese	Missouri, Mattese, St. Louis Co.		1		
Vera	Missouri, Vera, Pike Co.	4			
Peterson	Missouri, Warrenton	1			
Swarthmore	Pennsylvania, Swarthmore		2		
Fort Valley	Virginia, Fort Valley		1		
T. hirsutiflora					
	Arkansas, northeast of Little Rock, Pulaski Co.		1		
Perry	Georgia, Athens		1		
Dorsut	Louisiana, Caddo Parish	1		1	
	Louisiana, Iowa	5			
	Louisiana, L.S.U., Natchitoches, Natchitoches Parish		1		
	Louisiana, Mooringsport Road, Shreveport	2			
	Louisiana, between Scott and Duson		2		
	Texas, west of China	1			
	Texas, 14 mi. south of College Station, Brazos Co.	2			
Corer Lane	Texas, Corer Lane, Wilson Co.	2			
	Texas, between Fairbanks and Cypress	1		1	
	Texas, Gutz Clay Pit Road	1			
Flory	Texas, Hearne, Robertson Co.	1			
Ledbetter	Texas, 1 mi. east of Ledbetter, Fayette Co.	1			
	Texas, east of Liberty	1			
Sutherland Springs	Texas, Sutherland Springs	2			
T. tharpii					
	Kansas, Miltonvale, Cloud Co.		1		
Rocky Prairie	Missouri, Webb City, Jasper Co.		1		
Scullin	Oklahoma, Scullin		5		

Plant Name Anderson & Sax (1936)	Locality	2n	4n	2n +2	4n +2
T. gigantea					
Cliff Springs	Texas, Austin	18			
Lake Cliff	Texas, Austin	1			
Mo. Pac.	Texas, Austin	8		1	
Onion Creek	Texas, Austin	7			
River Cliff	Texas, Austin	2			
River Terrace	Texas, Austin	5			
Shoal Creek	Texas, Austin	7			
Terrace	Texas, Austin	12			
Bear Mtn.	Texas, Bear Mountain, Gillespie Co.	2			
Buda	Texas, Buda	1			
	Texas, bank of Guadalupe River, Gruene, Comal Co.	1			
Hunter	Texas, Hunter	1			
Mt. Bonnell	Texas, Mt. Bonnell	5			
T. ohiensis					
	Arkansas, Kings Canyon, Clarksville		5		1
	Arkansas, Y-City, Scott Co.		1		
Orlando	Florida, Orlando		1		1
Borglum	Georgia, Stone Mountain		1		
Warrenton	Georgia, Warrenton		1		
Warrenton	Georgia, Warrenton		1		
	Illinois, Bellflower, McLean Co.		2		
Pana	Illinois, Pana		1		
	Illinois, Roberts, Ford Co.		2		
Starved Rock	Illinois, Starved Rock, LaSalle Co.		1		
Ullin	Illinois, Ullin		1		
Diamond Lake	Indiana, Diamond Lake, Noble Co.	2			
	Indiana, Indiana Dune State Park		4		
Waterloo	Iowa, Waterloo	1			
	Kansas, Belvue, Pottawatomie Co.		5		
	Kansas, Belvue		2		
	Kentucky, Bardwell	1			
Dorcan	Louisiana, Caddo Parish	1			
	Louisiana, near Saline		2		
	Louisiana, near Shreveport	1			
Steere	Michigan, Ann Arbor	2			
	Michigan, Cedar Springs, Kent Co.		1		
	Michigan, Dexter	5			
Dexter	Michigan, Dexter	1			
Old Mill	Michigan, Grass Lake, Jackson Co.		1		
	Michigan, Homer, Calhoun Co.		1		
	Michigan, Litchfield, Hillsdale Co.		1		
Schoolcraft	Michigan, Portage, Kalamazoo Co.		1		
Reita	Michigan, Schoolcraft		1		
3 Rivers	Michigan, Three Rivers		1		
	Minnesota, Peterson		1		
McKee	Mississippi, State College		6		1
Algonquin	Missouri, Algonquin Sta., Webster Groves, St. Louis Co.		6		
Antonia	Missouri, Antonia, Jefferson Co.		2		
	Missouri, east of Brookfield, Linn Co.		1		
	Missouri, 5 mi. north of Drake, Gasconade Co.		1		
Florissant	Missouri, Florissant, St. Louis Co.		1		
Hamburg	Missouri, Hamburg		4		
La Barque	Missouri, La Barque Creek		1		
Red Rock	Missouri, Red Rock, Hughes Mountain		1		
Royal Gorge	Missouri, Royal Gorge, Iron Co.		1		

Plant Name Anderson & Sax (1936)	Locality	2n	4n	2n +2	4n +2
Wash. U.	Missouri, St. Louis		2		
Berry	Missouri, Warrensburg, Johnson Co.		2		
South Webster	Missouri, Webster Groves, St. Louis Co.		1		
Bolton	North Carolina, Bolton		3		
	Oklahoma, Hughes		1		
Platt Nat. Park	Oklahoma, Platt National Park, Murray Co.		1		
Turner Falls	Oklahoma, Turner Falls, Murray Co.		1		
Reflexa	Texas, Austin	1			
	Texas, Hearne	1			
Keller	Texas, Keller	2			
	Texas, between Pine Island and China	2			
	Virginia, Eagle Rock		1		
Mountain Lake	Virginia, Mountain Lake, Giles Co.		1		
Madison	Wisconsin, Arena		1		
Baraboo	Wisconsin, Baraboo		2		
	Wisconsin, 6 mi. northwest of Baraboo, Sauk Co.		2		
	Wisconsin, 3 mi. northwest of Big Spring, Adams Co.		1		
	Wisconsin, 2 mi. southwest of Caloma, Waushara Co.		1		
	Wisconsin, 3 mi. east of Friendship, Adams Co.		2		
Jollivette	Wisconsin, La Crosse		2		
	Wisconsin, Nekoosa, southeast corner Wood Co.		1		
	Wisconsin, Plainfield Lake, Waushara Co.		2		
	Wisconsin, Spring Green		1		
Tomah	Wisconsin, Tomah		1		
	Wisconsin, Viroqua		1		
	Wisconsin, 3 mi. south of Wisconsin Dells, Adams Co.		2		
	Wisconsin, 9 mi. north of Wisconsin Dells, Adams Co.		2		
T. paludosa					
Acadosa	Louisiana, Acadia Parish	1			
Brown	Louisiana, Baton Rouge	1			
	Louisiana, Bennettsville, Rapides Parish	1			
Gentilly	Louisiana, Gentilly	13			
T. bracteata					
Clarke	Iowa, Grinnell	1			
Grinnell	Iowa, Grinnell	2			
Harriss Grove	Iowa, 4 mi. north of Grinnell, Poweshiek Co.	2			
Kellogg	Iowa, Kellogg, Jasper Co.	1			
Kendallville	Iowa, Kendallville, Winneshiek Co.	1			
Pierson	Iowa, Pierson, Woodbury Co.	1			
Tama	Iowa, Tama	3			
Victor	Iowa, 1 mi. west of Victor, Poweshiek Co.	1			
	Kansas, Lawrence		2		
Gates	Kansas, Manhattan	2			
Manhattan	Kansas, Manhattan	1			
Rock	Minnesota, Beaver Creek, Rock Co.	1			
Preston	Minnesota, Preston, Fillmore Co.	1			
Worthington	Minnesota, Worthington	1			
Chain of Rocks	Missouri, Chain of Rocks, St. Louis Co.	1			
Portage des Sioux	Missouri, Portage des Sioux, St. Charles Co.	8			
Overton	Nebraska, Overton, Dawson Co.	3			
Royal	Nebraska, Royal	1			
Huron	South Dakota, Huron, Beadle Co.	1			
Kennebec	South Dakota, Kennebec	1			
Murdo	South Dakota, Murdo	1			
Rockerville	South Dakota, Rockerville, Pennington Co.	1			
Wasta	South Dakota, Wasta, Pennington Co.	2			
S. Dakota	South Dakota, Wind Cave, Custer Co.	1			
Houlton	Wisconsin, Houlton, St. Croix Co.	1			

Plant Name Anderson & Sax (1936)	Locality	2n	4n	2n +2	4n +2
T. hirsuticaulis					
Jacksonville	Alabama, Jacksonville	2			
Showal	Alabama, Jacksonville	1			
Quad Petal	Alabama, Whites Gap	1			
Whites Gap	Alabama, Whites Gap	1			
	Arkansas, northeast of Little Rock, Pulaski Co.	5			
Montgomery	Arkansas, Montgomery Co.	6			
Y-City	Arkansas, Y-City, Scott Co.	2		1	
North Slope	Georgia, Stone Mountain	1		1	
T. longipes					
Killarney	Missouri, Lake Killarney, Iron Co.		1		
	Missouri, Old Silver Mine, Madison Co.		1		
Spring Creek	Missouri, 5 mi. north of Stanton, Franklin Co.		1		
T. reverchoni					
Lucky	Louisiana, Lucky, Bienville Parish		1		
Flour Bluff	Texas, Flour Bluff	1			
	Texas, Ingleside, near Corpus Christi	4			
T. humilis					
Nigger D. & D.	Texas, Austin	3			
	Texas, Lockhart, Caldwell Co.	1			
	Texas, New Braunfels, Comal Co.	2			
	Texas, 10 mi. south of New Braunfels, Comal Co.	1			
Oakhill	Texas, Oakhill Road	7			
	Texas, Saline	1			
	Texas, W. W. White Road, Kyle	1			
T. subacaulis					
	Texas, Bryan, Brazos Co.	1			
	Texas, south of College Station, Brazos Co.	1			
T. roseolens					
Columbia	South Carolina, Columbia		5		
T. occidentalis					
Winslow	Arizona, Winslow		1		
Ellsmere	Colorado, Ellsmere		1		
Manitou	Colorado, Manitou		1		
Somena	Kansas, Somena		1		
	Louisiana, between Scott and Duson	2			
Brady	Nebraska, Brady, Lincoln Co.		1		
Chadron	Nebraska, Chadron, Dawes Co.		1		
Tryon	Nebraska, Tryon		1		
	Nebraska, Tryon, McPherson Co.		1		
	Nebraska, Whitman, Grant Co.		2		
Belew	Oklahoma, Harmon	1			
	Oklahoma, Indian Springs, south of Norman	1			
Paoli	Oklahoma, Paoli	1			
Horsethief Lake	South Dakota, Horsethief Lake		1		
S. Dakota	South Dakota, Wind Cave, Black Hills		1		
Austin	Texas, Austin	4			
Ilex Grove	Texas, College Station		8		
Jeanette	Texas, College Station		3		
Mangelsdorf	Texas, College Station		4		
Signal	Texas, College Station		2		
	Texas, 14 mi. south of College Station	1			
	Texas, Miranda, Webb Co.	1			

Species of *Tradescantia*	2n		4n		2n + 2		4n + 2	
	Populations	Individuals examined	Populations	Individuals examined	Populations	Individuals examined	Populations	Individuals examined
subaspera typica	1	1	11	16	....	....	....	....
subaspera montana	....	....	8	24	....	....	1	1
edwardsiana	2	17	....	....	....	....	....	....
ozarkana	2	4	3	3	....	....	....	....
ernestiana	5	9	....	....	....	....	....	....
virginiana	11	19	11	16	....	....	1	1
hirsutiflora	12	20	4	5	2	2	....	....
tharpii	....	....	3	7	....	....	....	....
gigantea	13	70	....	....	1	1	....	....
ohiensis	12	20	56	96	....	....	3	3
paludosa	4	16	....	....	....	....	....	....
bracteata	24	39	1	2	....	....	....	....
hirsuticaulis	8	19	....	....	2	2	....	....
longipes	....	....	3	3	....	....	....	....
reverchoni	2	5	1	1	....	....	....	....
humilis	7	16	....	....	....	....	....	....
subacaulis	2	2	....	....	....	....	....	....
roseolens	....	...	1	5	....	....	....	....
occidentalis	7	11	15	29	....	....	....	....
	112	268	117	207	5	5	5	5

Total populations studied 230
Total individuals examined 485